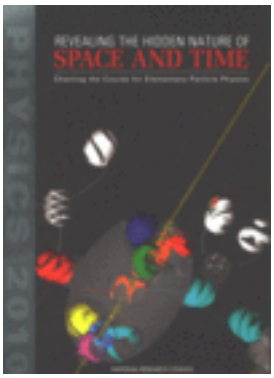
FEDERAL DEFENDANTS' DECLARATION OF BRUCE P. STRAUSS

ATTACHMENT 5

Wagner v. U.S. Dep't of Energy

Civil No. 08-00136-HG-KSC (D. Haw.)



Revealing the Hidden Nature of Space and Time: Charting the Course for Elementary Particle Physics

Committee on Elementary Particle Physics in the 21st Century, National Research Council

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REVEALING THE HIDDEN NATURE OF SPACE AND TIME

Charting the Course for Elementary Particle Physics

Committee on Elementary Particle Physics in the 21st Century

Board on Physics and Astronomy

Division on Engineering and Physical Sciences

NATIONAL RESEARCH COUNCIL
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3. The field of elementary particle physics is entering an era of unprecedented potential. New experimental facilities, including accelerators, space-based experiments, underground laboratories, and critical precision measurements of various kinds, offer a variety of ways to explore the hidden nature of matter, energy, space, and time. The availability of technologies that can explore directly an energy regime known as the Terascale is especially exciting. The direct exploration of the Terascale could be the next important step toward resolving questions that human beings have asked for millennia: What are the origins of mass? Can the basic forces of nature be unified? How did the universe begin? How will it evolve in the future? Moreover, at Terascale energies, formerly separate questions in cosmology and particle physics become connected, bridging the sciences of the very large and the very small.

The results of the committee's analysis have led to its chief recommendation:

The United States should remain globally competitive in elementary particle physics by playing a leading role in the worldwide effort to aggressively study Terascale physics.

To implement the committee's chief recommendation, the Department of Energy and the National Science Foundation should work together to achieve the following objectives in priority order:

1. Fully exploit the opportunities afforded by the construction of the Large Hadron Collider (LHC) at the European Center for Nuclear Research (CERN).
2. Plan and initiate a comprehensive program to become the world-leading center for research and development on the science and technology of a linear collider, and do what is necessary to mount a compelling bid to build the proposed International Linear Collider (ILC) on U.S. soil.
3. Expand the program in particle astrophysics and pursue an internationally coordinated, staged program in neutrino physics.

The LHC will begin exploratory research at the Terascale within the next few years. Physicists expect it to produce evidence for the Higgs particle that is hypothesized to be responsible for generating the mass of all matter. In addition, theoretical arguments point to the possibility of discovering a new symmetry, known as supersymmetry, at the LHC in the form of new particles that are partners to the currently known particles; some of these new supersymmetric particles may turn out to constitute the mysterious "dark matter" that pervades the universe.